TRADE (A) MARK.

ALLISON'S

PATENT

SOCKET

FOR CONNECTING

WROUGHT-IRON TUBES.

W. C. ALLISON & CO.

Philadelphia, Pa.

W. C. ALLISON & CO.

THIRTY-SECOND AND WALNUT STREETS,

Philadelphia.

MANUFACTURE

Wrought-Iron Pipe,

LAP-WELDED

Artesian, Salt & Oil Well Tubing & Casing.

CHARCOAL IRON

Boiler Tubes.

Brass Work, Cast, Wrought and Malleable Iron Fittings, &c.

BRANCH OFFICE AND WAREHOUSE,

78 JOHN STREET,

NEW YORK.

BRANCHES IN

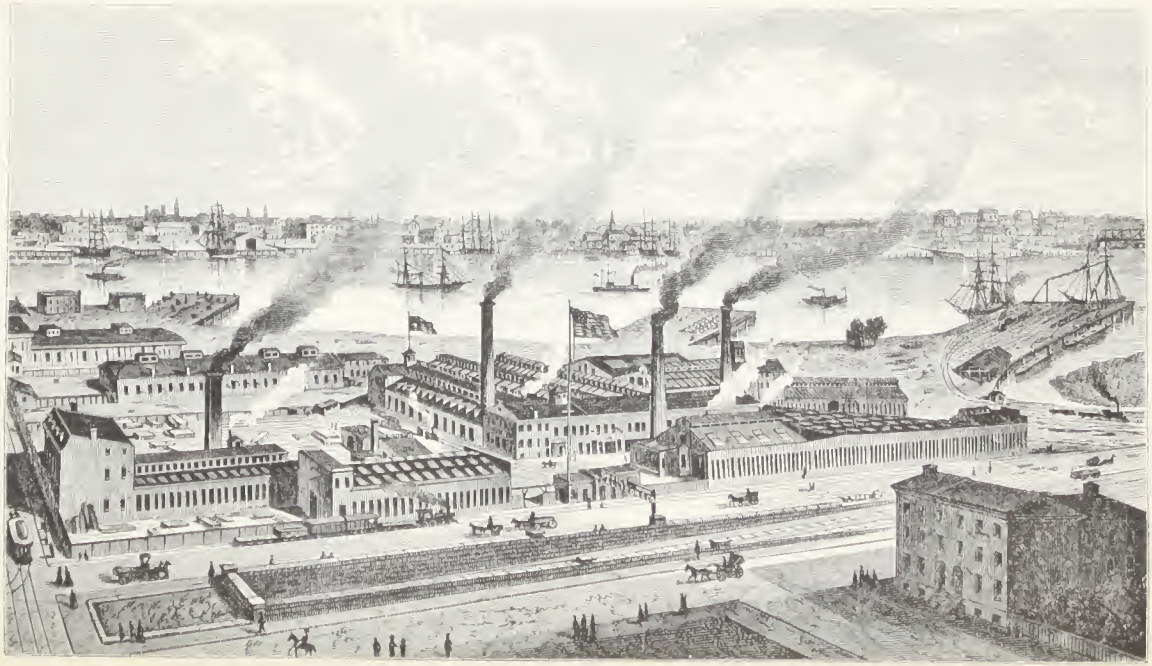
PENNSYLVANIA OIL REGIONS:

FOXBURG,	CLARION COUNTY,	PA.
KARNS CITY,	BUTLER	"	"
EDENBERG,	CLARION	"	"
WARREN,	WARREN	"	"
BRADFORD,	MCKEAN	"	"

R. F. BORCKMAN,

General Agent,

Office—Foxburg, Clarion County, Pa.



WORKS AND MAIN OFFICE, PHILADELPHIA.

Notice.

OUR TRADE MARK

Is stamped on all the Tubing, Casing and Boiler Tubes that we manufacture.

Our Deep-Well Tubing and Line Pipe is tested by Hydraulic Pressure to 2000 lbs. to the square inch, and when under this pressure each piece is hammered on the welding-seam its entire length.

W. C. Allison & Co.

CENTENNIAL MEDAL

AWARDED FOR

ALLISON'S PATENT SOCKET.

Copy from Awards.

"The Pipe Connection is a very meritorious invention, especially for Oil Wells, having a vanishing screw which permits a bearing at all points, without weakening the tube."

SIGNED BY

First Group of Judges:

JOSEPH BELKNAP, Chairman
EMIL BRUGSCH,
N. PETROFF,
F. REWLEAUX,
W. H. BARLOW,
HORATIO ALLEN,
CHARLES E. EMERY,
CHARLES T. PORTER.

Second Group of Judges:

DAVID STEINMETZ, President.
J. D. IMBODEN.
CHARLES STAPLES.

A true copy of the record:

FRANCIS A. WALKER,
Chief of the Bureau of Awards.

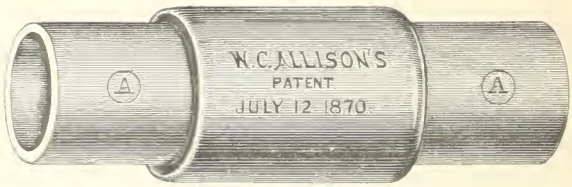
Given by authority of the United States Centennial Commission.

J. C. CAMPBELL, Secretary.
A. T. GOSHORN, Director-General.
JOS. R. HAWLEY, President.

WE desire to call especial attention to the superior advantages of the

Allison Patent Socket,

OWNED AND USED EXCLUSIVELY BY US.



This Invention was patented July 12th, 1870, and is the result of a series of experiments conducted for the purpose of overcoming the defects of the standard Pipe Thread and Socket, which had been a constant source of trouble and loss.

It has to the fullest extent supplied this want, and furnished the improvement so long and urgently demanded to meet the severe strain Tubing is required to sustain in pumping Oil, Salt, and Artesian Wells.—In such wells, Tubing being frequently suspended from 1800 to 2000 feet, under a heavy pumping pressure and vibration.

IT has also proven to be the

Best Coupling

FOR

Wrought-Iron Line Pipe

Used for transporting Oil, Liquids and Gases, where the pressure frequently exceeds 1200 lbs. to the square inch.

Since the introduction of our invention for connecting Tubes, it has been practically tested by a very extensive and varied use, and the excellent results obtained have made for it a record far exceeding our original expectations or claims.

By the use of this Improved Coupling, in connection with the other merits of our Tubes, viz: superior quality of material, workmanship, careful testing and examination, we have established an unequaled reputation for our Oil Well Tubing, Casing and Line.

These facts are so generally and generously acknowledged, as not to require verification by testimonials.

IN order that our improvement may be more fully understood, we deem it advisable to first describe the Customary or "Standard" method of connecting wrought-iron tubes, and refer to the following illustrations, viz.:

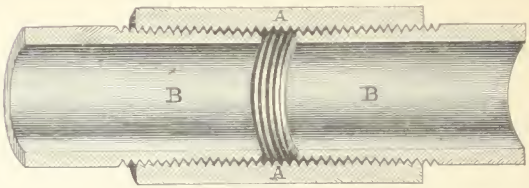


Fig. 1.

Representing a longitudinal section, through the centre of two pieces of tubing B B, connected by the (Standard) Socket A, and

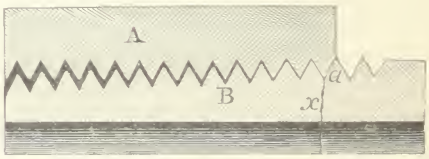


Fig. 2.

Being a quarter section of Fig. 1, enlarged so as to show the defects more plainly.

By reference to Fig. 1 it will be noticed that the screws on the ends of the tubes B B are slightly tapering, and that the threads are of *uniform depth* throughout, terminating at a shoulder (*a*, Fig. 2).

By examination of the socket A, Figs. 1 and 2, it will also be observed that the threads are of uniform depth; but the screw is cut entirely straight through the socket, without any taper.

The defects are plainly shown in Fig. 2, where it will be observed that only a portion of the threads in the socket A are in proper binding contact with the threads of the screw on the tube B, and that the *omission* of a proper taper in the screw of the socket A prevents a greater portion of the threads, both in the socket and on the tube, from being of any avail as mediums for effecting a tight and efficient connection of the two tubes B B, Fig. 1.

Another serious objection, and the *principal defect*, is in the abrupt termination of the screw on the tube forming the shoulder

a, (Fig. 2), making an incision at the point *x*, which is the commencement of an easy fracture, and rendering the tube the weakest at this point—in the very place it requires the greatest strength.

Upon consideration it will be readily perceived that the slightest strain, jar or vibration to the tubing, when it is suspended or being driven, will be first indicated at, and always the most severe at, this point (*x*, Fig. 2), which in fact acts as and is the fulcrum to the strain.

Another trouble with this socket is its constant liability to become easily loosened, on account of the limited contact of its screw thread with the threads on tubes; and no matter how often it may be tightened, the shoulder (*a*, Fig. 1) on the tubing would still exist, and prevent permanent tightening. Frequent tightening would soon wear the threads of the socket and exhaust the surplus threads of the screw on the tubes, rendering the joint useless.

Our improvement we will describe and illustrate in a similar manner.

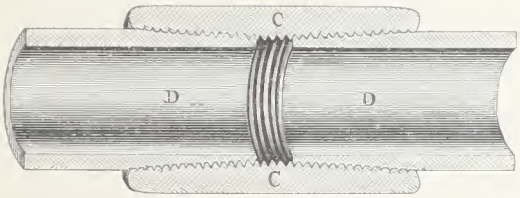


Fig. 3.

Represents a longitudinal section of two tubes, D D, connected with the Allison Patent Socket, C.

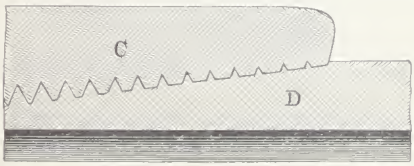


Fig. 4.

Represents a quarter section of Fig. 3, enlarged to render the principle of the improvement more apparent.

By comparison of these diagrams with the similar illustrations, Figs. 1 and 2, the differences are plainly shown.

It will be observed that the screw on the tubes D D, Figs. 3 and 4, are also slightly tapering, but that the threads, instead of being a uniform depth throughout (as in Figs. 1 and 2), gradually vanish until they disappear at the exterior surface of the tube.

The socket C, Figs. 3 and 4, instead of having a screw thread cut straight through it, as in Figs. 1 and 2, has two internal screws and tapering, one in one direction for receiving the end of one tube, the other in another direction for receiving the end of the other tube.

The taper of each screw conforming with that of the tube it has to receive, and the threads vanishing, corresponding with the vanishing threads of the screws on the tubes. In fact, there is a uniform exactness of the screws on all our tubing and in all our sockets, both in length, taper and thread.

The advantages of this method of connecting tubes over all others now in use may be enumerated as follows:

There is a perfect metallic contact throughout between the socket and the tube, making a perfect and secure joint, like a screw wedge.

There is no abrupt shoulder (like a, Fig. 2) at the termination of the screw on the tube, and hence no incision or weak point at this place, as in a, Fig. 2. but, as shown in Fig. 4, the greatest amount of metal in the entire screw of the tube is at this point, which, as has been previously stated, is the place, more than all others, that requires the greatest strength.

The socket is an integral part of the tubing, and from its perfect connection with the tubes makes the joints of a number of pieces of tubing, connected this way, the strongest parts of the entire length of tubing.

The screws in the socket and on the tube are much longer than on the Standard. The taper is very gradual, and the ends of the tubing, if necessary, could be made to meet.

These features enable long lines of connected tubes to be made perfectly straight, and when suspended, to be free from any crookedness caused by the joints, an advantage only attained by the use of the Allison Socket.

The socket is not liable to be easily loosened; the vanishing threads, the perfect screw wedge character of the coupling, makes the screwing and unscrewing of the socket an advantage, it serving as the process of making a perfect ground joint.

In conducting the experiments alluded to, the following tests were made to show the relative differences between the two methods of connecting tubes just described.

A piece of 2 inch tube, with our patent socket screwed on it, separated a distance from the socket under a tensile strain of 65,000 pounds to the square inch, the screws and all the threads on the socket and tubing remaining in a perfect condition. Another part of the same piece of tubing, with the usual standard socket screwed on it, yielded under a tensile strain of 37,000 pounds, the tube separating in and near end of the socket (at the incision *x*, Fig. 2). Another time the tubing was pulled out of the standard socket, stripping the few threads that were in contact.

One of our 2 inch patent sockets was screwed by machinery to a piece of tubing; the socket was then taken off, and after the operation was repeated one hundred and sixty times, all the threads, both on the socket and on the tube, were found on close examination to be as perfect as when the operation commenced, showing that by this process the joints were absolutely ground together.

The same severe test was applied to the Standard socket; but on screwing it the tenth time, the tubing broke off, separating at the incision *x*, Fig. 2.

Two pieces of tubing, connected by our patent socket, was submitted to a direct pressure on the socket, and showed a maximum deflection of over 28,000 lbs. The same experiment was tried with the sockets of other manufacturers on the tube—and the highest deflective pressure sustained by any of them was less than 20,000 lbs.

Other experiments conclusively proved that the style of socket we have adopted is by far the best method now in use for coupling wrought-iron tubes, and is not susceptible of farther improvement.

In addition to the use of our socket for the purposes we have specially mentioned, it makes an excellent joint for truss and connecting rods and braces, formed of connected iron or tubing; also for iron pile driving, iron light-houses, bridges, and other classes of building construction.

AT the recent CENTENNIAL EXHIBITION, the ALLISON PATENT SOCKET received a large amount of attention and favorable comment from the Industrial Press and the ablest Engineers and Mechanical Experts, and was the subject of special report by the Representative Experts of our own Government and the principal Foreign Governments. We received, as stated, special favorable mention for this invention in the report and award on our General Exhibit of PIPE AND BOILER TUBES; and, in addition thereto, by another set of very competent Judges, a separate and special Premium and Award, exclusively for our PATENT SOCKET, which is the first and only Premium awarded for a Tube Coupling.

To all those who have occasion to use Tubing requiring a perfect security against breaking at joints, or Tubing to be subjected to a compressive or suspended strains, such as in Coils, Drive Well or Oil Wells, &c. we would respectfully invite a trial of our LAP-WELDED PATENT SOCKETED TUBING.

Upon application, we will be glad to furnish Sample Sockets, Price Lists and Catalogues.

IN addition to the Specialties stated on first page, we manufacture all kinds of

RAILROAD CARS,

Bolts, Nuts and Washers,

WROUGHT AND CAST-IRON WORK

FOR

Cars, Buildings and Bridges.

ALSO, FURNISH ALL KINDS OF

RAILROAD SUPPLIES,

Tools, &c. &c.

TRADE (A) MARK.

AS many parties have been selling Boiler Tubes, Pipe, &c., misrepresenting them as being of our manufacture, we would respectfully request that buyers should examine and see that our *trade mark* is distinctly stamped on them. If they are not thus stamped they are not of our make.

Respectfully,

W. C. ALLISON & CO.

32d and Walnut Streets,

PHILADELPHIA.

NATIONAL EXHIBITION
AWARDED BY
UNITED STATES
CENTENNIAL
COMMISSION
PHILADELPHIA MDCCCLXXVI